

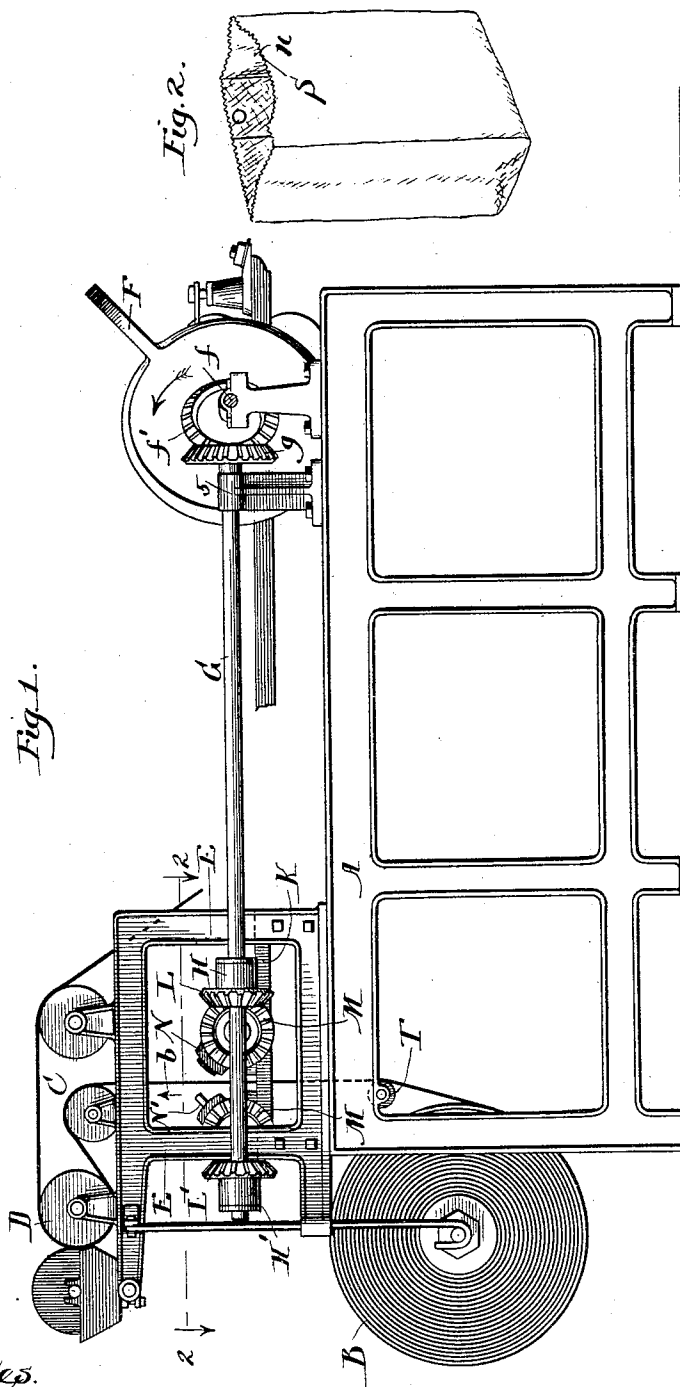
(No Model.)

3 Sheets—Sheet 1.

A. C. GETTEN.
PAPER BAG MACHINE.

No. 481,650.

Patented Aug. 30, 1892.



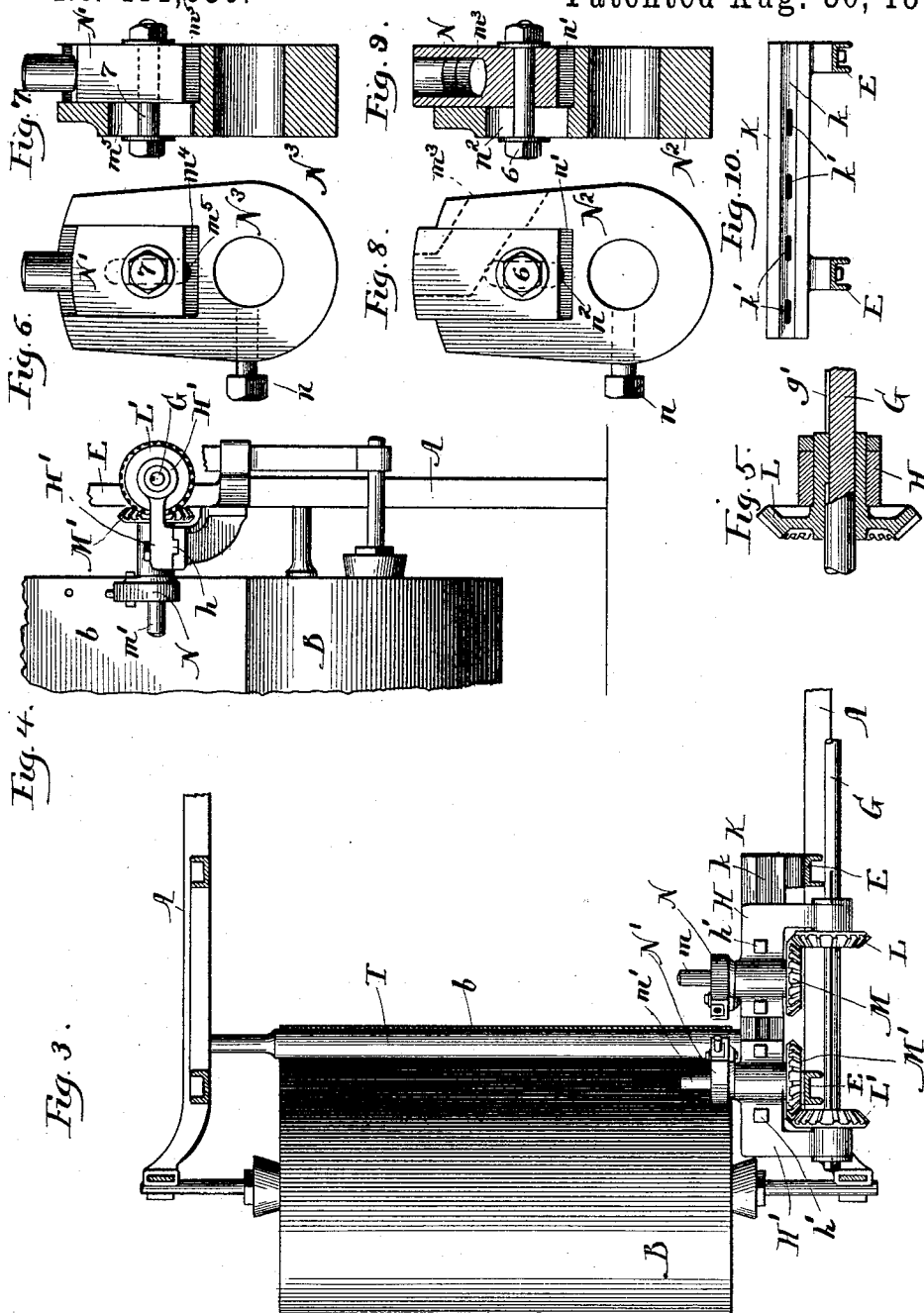
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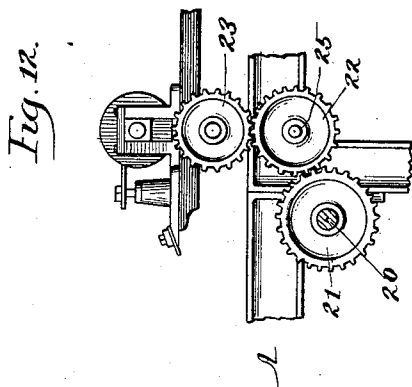
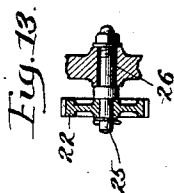
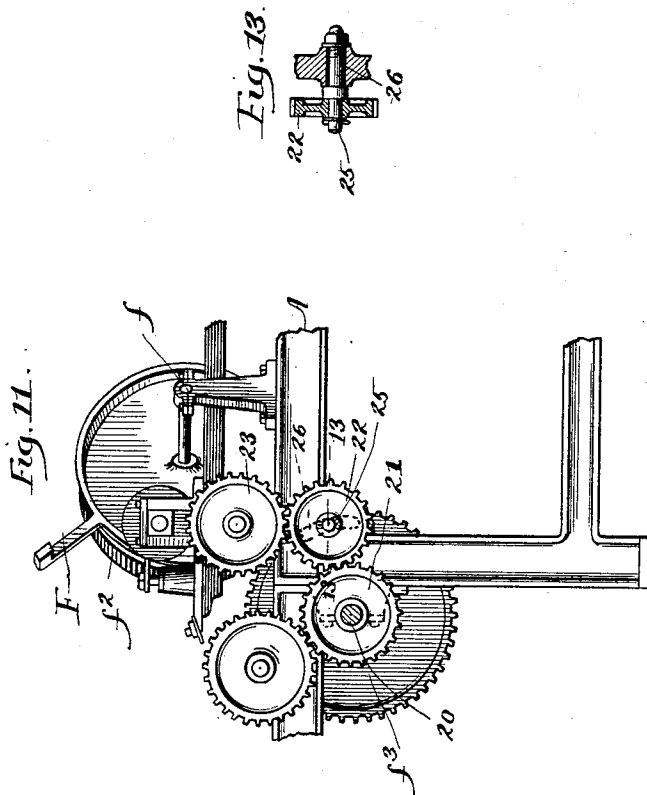
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3 Sheets—Sheet 3.

A. C. GETTEN.
PAPER BAG MACHINE.

No. 481,650.

Patented Aug. 30, 1892.



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UNITED STATES PATENT OFFICE.

ALBERT C. GETTEN, OF CHICAGO, ILLINOIS.

PAPER-BAG MACHINE.

SPECIFICATION forming part of Letters Patent No. 481,650, dated August 30, 1892.

Application filed October 26, 1891. Serial No. 409,775. (No model.)

To all whom it may concern.

Be it known that I, ALBERT C. GETTEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Paper-Bag Machines; and I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

In Letters Patent No. 405,308, granted to me June 18, 1889, there is described and claimed an improvement in paper-bag machines which consists in providing the machine with a punch for perforating the paper, the punch being located in position to perforate the paper adjacent but entirely at one side of the line of the top edge of each bag. The purpose of such construction is to enable the finished bags as they issue from the machine to be provided each with a perforation or cut-away space, so that after the bags have been bunched together these perforations will enable a suitable sustaining rod, cord, or wire to be passed through the perforations, in order to permit a number of bags to be conveniently held together in such manner that one or more can be readily removed from the mass without disarranging the others.

My improved construction of machine hereinafter described, while employing the broad feature of invention set forth in my above-mentioned Letters Patent, has for its object to improve the construction and arrangement of mechanism whereby the punching of the paper is effected; and this object I have accomplished by the features of novelty hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims at the end of this specification.

As my invention is applicable to any of the familiar types of paper-bag machines in which the bags are formed from a continuous web of paper and in which provision is made for varying the relative speed of the mechanism for feeding and severing the web of paper, I have not deemed it necessary to illustrate a complete machine, but have shown only such parts of the machine as will tend to give a clear understanding of my present improvements.

The machine in connection with which my

invention is illustrated is of the type shown in Letters Patent No. 370,099, granted to C. B. Stillwell, September 20, 1887, in which a striker is employed for severing the folded web of paper into proper lengths to form the finished bags; but it will be readily understood that the improvements are applicable to a variety of other machines in which any suitable form of folding or cutting mechanism is employed.

Figure 1 is a view in side elevation of a portion of the paper-bag machine having my improvements applied thereto. Fig. 2 is a perspective view of a finished bag, showing the position in which the perforation is effected. Fig. 3 is a plan view of the front end of the machine. Fig. 4 is an end view of the side of the machine to which the punching mechanism is connected. Fig. 5 is a detail view, in vertical section, through one of the gear-wheels that drives the punch mechanism, a part of its shaft being shown in side elevation. Fig. 6 is a side view, and Fig. 7 a view in central vertical section, of the male punch or die and its holder. Fig. 8 is a side view, and Fig. 9 a view in vertical section, of the female punch or die and its holder. Fig. 10 is a detail plan view of the bracket which sustains the bearings for the punch-shafts. Fig. 11 is a view in side elevation showing the gear mechanism connecting the striker with the paper-feeding rolls. Fig. 12 is a detail view showing gear mechanism for making bags of larger size. Fig. 13 is a detail sectional view on line 13 13 of Fig. 12.

A designates the main frame of the machine, at the front of which is suitably sustained the roll of paper B, the paper passing from this roll in a sheet or strip *b* over suitable rolls C and D, that are sustained upon the standards E, that rise from the main frame. The roll D is the roll in conjunction with which the usual paste-applying roller acts; but I have not deemed it necessary to illustrate in full detail this well-known mechanism of paper-bag machines. From the roller D the web of paper will pass over the usual former to fold it into tubular shape, and from this former it will pass beneath a striker-arm F or other suitable cutting mechanism, whereby it will be severed into proper lengths to form the finished bags. The striker F is

carried by the usual oblique shaft f , the speed of this shaft and of the striker with respect to the feed-rolls serving to determine the proper lengths of the bags.

5 Any convenient mechanism may be employed for varying the relative speed of the paper-feed rolls and the striker, as well understood in this class of machines. A simple type of such mechanism is illustrated in Figs. 10 11, 12, and 13 of the drawings, in which the outer end of the striker-shaft f is shown as provided with a gear-wheel f^2 , that meshes with the gear-wheel f^3 upon the main drive-shaft 20. This shaft 20 extends across the machine, and at its opposite end carries a pinion 21, that engages an idler-pinion 22, which in turn engages the pinion 23, that is fixed to one of the paper-feeding rolls.

When it is desired to vary the relative speed of the striker and of the feed-rolls in order to change the length of the bags, the pinion 23 will be removed and a smaller or larger pinion substituted therefor, a smaller pinion being shown in Fig. 12 of the drawings. After 25 such smaller pinion has been substituted the idler 22 will be adjusted to properly engage the smaller pinion, and to permit of such adjustment the idler may be journaled upon a stud 25, that is adjustable within a slot 26 of the main frame. Any other suitable mechanism may be employed for varying the relative speed of the paper feeding and severing mechanism.

Upon the striker-shaft f is mounted a beveled pinion f' , with which meshes a corresponding beveled pinion g , carried upon the end of the punch drive-shaft G , that is journaled in a fixed bracket 5 and in movable bearings H and H' , that are sustained upon 40 a suitable bracket K , bolted to the standard E of the machine. Upon this shaft G is keyed, in a manner free to slide thereon, (see Fig. 5,) the beveled gear-wheels L and L' , that serve to transmit movement from the shaft to corresponding beveled gear-wheels M and M' of the short shafts m and m' , that carry the punches or dies N and N' , whereby the perforation of the paper is effected. The hub of each of the beveled gear-wheels L and L' fits 50 within the expanded end of the corresponding bearing H and H' , and is provided with a key or pin to fit within a slot g' of the shaft G , so that the gear-wheels L and L' will partake of the movement of this shaft G while being free to be shifted lengthwise thereon. 55 The bearings H and H' may be adjustably mounted upon the bracket K in any convenient way, and indeed any suitable form of mechanism may be used for effecting the adjustment of the punch-carrying shafts m and m' , instead of the precise mechanism shown, without departing from the spirit of my invention.

In the construction shown the bearings H 65 and H' are provided upon their under sides each with a rib h , entering a corresponding groove k in the top plate of the bracket K ,

and within this top plate of the bracket K will be formed slots k' to receive the bolts h' , that pass through the bearings H and serve 70 to adjustably connect them to the top plate of the bracket. The shafts m and m' , that carry the punches or dies N and N' , are journaled within suitable boxes formed in or connected with the bearings H and H' , and preferably these shafts extend a sufficient distance beyond the bearings H and H' to permit the dies or punches N and N' to be adjusted lengthwise slightly upon said shafts 75 m and m' , for a purpose to be presently stated. 80

N is the female punch or die, and N' the male punch or die, the female punch or die N being carried by a suitable holder N^2 , fixed by set-screw n to the shaft m , and the male punch or die N' is carried by a corresponding 85 holder N^3 , fixed by a set-screw n to the shaft m' . The holder N^2 , whereby the female die is connected to its shaft, is provided with a recess n' , adapted to receive the die, and with a slot n^2 at the back of said recess to 90 receive a bolt 6, that passes through the base of the female die and serves to adjustably connect the female die to its holder. So, also, the holder N^3 of the female die is formed with an opening m^3 in its side for the escape 95 of the pieces of paper that are punched from the web. In like manner the holder N^3 , that carries the male die, is formed with a seat m^4 to receive this die and with a groove m^5 to receive the bolt 7, that passes through the 100 male die and serves to adjustably connect it to the holder.

In paper-bag machines of the class to which my invention is more especially applicable provision is made for forming bags of different 105 lengths—say, for example, twelve, fourteen, and sixteen inches; and my object in providing the mechanism for the adjustment of the dies is to enable these dies to be properly set for punching the paper at appropriate 110 points for the different lengths of bags—that is to say, when the machine is forming very short bags (for example, ten inches long) the bearings H and H' and the punch-carrying shafts m and m' will be close together; but 115 when the machine is adjusted to form bags of greater length (for example, fourteen or sixteen inches long) the bearings H and H' and the punch-carrying shafts m and m' will be adjusted so as to insure a uniform surface 120 speed of the paper and of the punches in making the perforations in the web of paper at correspondingly greater distances apart. This adjustment of the punches is effected in the following manner, viz: If the punches be assumed to be at the proper position when the machine is forming very short bags and it is 125 desired to punch the web of paper for bags of greater length, the bearings H and H' will be moved away from each other, so as to separate to a great distance the punch-carrying shafts m and m' , and when the bearings are moved to the proper distance apart they will be held in such position by means of the bolts 130

h'. The male and female dies or punches N and N' will then be adjusted outward upon their holders by means of the bolts 6 and 7, so as to bring the working points of these punches into proper relation for effecting the perforation of the paper. Manifestly any other convenient means may be employed for adjusting the punches, the purpose simply being to enable these punches to be brought into proper relation after the punch-carrying shafts have been so far separated that the circle described by the punches shall correspond in length to the length of the bag to be formed by the machine. Inasmuch as the shaft G is geared with the striker or cutting mechanism by which the web of paper is severed into proper lengths, it is manifest that the movement of the punches or dies will correspond with the movement of the striker and will insure the punching of the web of paper at proper intervals.

It will be observed that my improved punch mechanism is arranged to operate upon the web of paper at points adjacent one of its edges and perforates one thickness of the paper only; but it is obvious that when the web of paper is subsequently folded into tubular shape to form the finished bag, as seen in Fig. 2, this perforation will come at one side of the line of the pasted seam of the web of paper and will come opposite the cut-away space S, that by the usual mechanism is formed at the opposite side of the finished bag.

In order to accurately present the web of paper to the cutting-rolls, I provide an idler-roll T, that is suitably journaled in the main frame at a point immediately beneath the point at which the punching of the paper is to be effected, since if no such provision were made the web of paper as it became exhausted from the roll would tend to turn out of a vertical line and would not be properly presented to the punches.

The precise details of construction above set out may be varied without departing from the spirit of my invention, and I do not wish my invention to be understood as restricted thereto. Thus, for example, while my invention is especially applicable for providing the paper with perforations adapted to come adjacent to the top edge of each bag it will be understood that the mechanism which I have illustrated can be employed with advantage for perforating or cutting the paper at other points, the peculiar feature of providing adjustable dies and adjustable shafts for said dies being applicable in other situations than that illustrated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position

to perforate the paper and adjustable shafts for said punches or dies, whereby the adjustment of the punches can be effected for different lengths of bags, substantially as described.

2. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper adjacent to but entirely at one side of the line of the top edge of each bag, and adjustable shafts for said punches or dies, whereby the adjustment of the punches can be effected for different lengths of bags, substantially as described.

3. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper, adjustable shafts for said punches or dies, and suitable gearing connecting said shafts with the striker or mechanism whereby the web of paper is severed, substantially as described.

4. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of punches or dies located at the front of the machine and in position to perforate the paper adjacent to the edge of the web and in advance of the folding mechanism or former, individual shafts for carrying said punches or dies, individual gear-wheels for said shafts, and suitable gearing connecting said shafts with the shaft of the striker or paper-severing mechanism, substantially as described.

5. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper, adjustable shafts for said punches, a gear-wheel for each of said shafts, adjustable gear-wheels for engaging with the gear-wheels of the punch-carrying shafts, and suitable gearing for transmitting movement to said gear-wheel, substantially as described.

6. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper, adjustable shafts for said punches, a gear-wheel for each of said shafts, adjustable gear-wheels for engaging with the gear-wheels of the punch-carrying shafts, a shaft whereon said adjustable gear-wheels are carried and upon which they are longitudi-

nally adjustable, and suitable gearing for connecting said shaft with the shaft of the striker or paper-severing mechanism, substantially as described.

- 5 7. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of ad-
10 justable punches or dies for perforating the paper, shafts for said punches or dies, adjustable bearings for carrying said shafts, a suitable support or bracket for said adjustable bearings, and gear-wheels for driving said
15 punch-carrying shafts, also connected to said adjustable bearings, substantially as described.
8. In a paper-bag machine, the combination, with suitable mechanism for feeding the web
20 of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies for perforating the paper, holders to which said punches or dies

are adjustably connected, shafts whereon said 25 holders are adjustably mounted, suitable adjustable bearings for said shafts, and gearing for transmitting movement to said shafts, substantially as described.

9. In a paper-bag machine, the combination, 30 with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of ad-
justable punches or dies located in position 35 to perforate the paper adjacent to but entirely at one side of the line of the top edge of each bag, adjustable shafts for said punches or dies, gear-wheels connected to said shafts, adjustable gear-wheels for engaging with the 40 gears upon said shafts, and a shaft extending outside the machine-frame and connecting with the striker-shaft, substantially as described.

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